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10/680,256	10/08/2003	Kyojiro Nanbu	243490US-2S CONT	5662
22850	7590	07/19/2007	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.			LE, BRIAN Q	
1940 DUKE STREET			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22314			2624	
			NOTIFICATION DATE	DELIVERY MODE
			07/19/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/680,256	<b>Applicant(s)</b> NANBU, KYOJIRO	
	<b>Examiner</b> Brian Q. Le	<b>Art Unit</b> 2624	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 May 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5, 7, 8, 10, 11, 14, 33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-8, 10-11, 14, and 33-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **Response to Amendment and Arguments**

1. Applicant's amendment filed May 23, 2007, has been entered and made of record.
2. Regarding the rejection of claim 14 under 35 U.S.C. 112, first paragraph, the Applicant argues (pages 12-13 of the Remarks) citing MPEP 2164.01 to require that the Examiner must show "specific technical reasons" of how the specification lacks of enablement. As disclosed in the previous Office Action, the Examiner has clearly indicated the claimed limitation (specific technical reason) "average means for averaging values of the first pixel and the second pixel when the numerical similarity is high in the numerical means, and for not averaging the first pixel value and the second value when the determined similarity is low." is not supported in the original specification and thus does not provide a sufficient information to inform one of the ordinary skill in the art to make and use the claim invention. Thus, it is the Applicant's burden to show the exact citation (page number and line number) in the specification for the support for the limitation.
3. Applicant's arguments, see Remarks, filed 05/23/2007, with respect to the rejection(s) of claim(s) 1-3, 6-7, and 11-13 under 35 U.S.C. 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Masumoto et al. U.S. Patent 7,046,833.

The Examiner believes that all the arguments of the Applicant have been properly addressed and explained.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

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pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-5, 7-8, 10-11, 14, and 33-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding independent claims 1, 2 and 33, there is no support of the limitation “decision means for deciding a similarity between a first pixel and a second pixel of an image based on a plurality of images obtained by photographing an identical subject at different times” found in the original disclosure. The Applicant is required to show the exact citation (page number and line number) for the support of this limitation.

Regarding claims 5, 14 and 34, the original disclosure does not show the support of how the limitation “average means for averaging values of the first pixel and the second pixel when the numerical similarity is high in the numerical means, and for not averaging the first pixel value and the second pixel value when the determined similarity is low” is not supported in the original specification and thus does not provide a sufficient information to inform one of ordinary skill in the art to make and use the claim invention. Thus, it is the Applicant’s burden to show exact citation (page number and line number) in the specification for the support of the limitation.

For claim 11, there is no support found for the claimed limitation “wherein the first image is obtained by subjecting the image to averaging processing with the average means and the second image is obtained by subjecting the image to processing different from the averaging processing.”

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 7-8, 10-11 and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Masumoto et al. U.S. Patent No. 7,046,833.

Regarding claim 1, Masumoto teaches an image processing apparatus (abstract and column 2, lines 47-60) comprising:

Decision means for deciding a similarity (correlation between pixels) (column 6, line 11) between a first pixel and a second pixel of an image based on a plurality of images obtained by photographing an identical subject at different times (the process of capturing the liver region of the first time phase and the second time phase) (column 6, lines 11-18);

Average means for subjecting the first pixel and the second pixel to weighted averaging on the basis of a decided result by the decision means (column 10, lines 29-31 and column 7, lines 50-52).

Regarding claim 2, as discussed in claim 1, Masumoto further teaches an image processing apparatus comprising:

Numerical means for giving a weight which is determined by the similarity between the first pixel and the second pixel decided by the deciding means (generate metric CT values of pixels) (column 5, lines 22-28); and

Average means for subjecting values of the first pixel and the second pixel to weighted averaging by using the weight numerically given (column 10, lines 29-31 and column 7, lines 50-52).

For claim 3, Masumoto also teaches an image processing apparatus wherein the average means obtains a new pixel value concerning the first pixel, as a weighted average of a plurality of pixels (average value vector) (column 6, lines 30-43).

For claim 7, Masumoto also discloses the image processing apparatus wherein the plurality of images are obtained in such a way that the identical subject is photographed at different photographing conditions by employing the imaging equipment (liver region images being captured at different times) (column 6, lines 11-18).

Regarding claim 8, please refer back to claim 7 for further teachings and explanations.

Referring to claim 10, Masumoto teaches an image processing further comprising:

Means for comparing a first vector constructed by arraying corresponding pixel values of the plurality of images in coordinates of the first pixel, and a second vector constructed by arraying corresponding pixel values of the plurality of images in coordinates of the second pixel (random variable vector of image regions) (column 6, line 30-35),

Wherein the decision means decides the similarity between the first pixel and the second pixel in a predetermined one of the plurality of images (correlation between pixels) (column 6, lines 11-18).

For claim 11, Masumoto teaches the image processing apparatus further comprising image average means for averaging a first image and a second image (column 10, lines 29-31 and column 7, lines 50-52), wherein the first image is obtained by subjecting the image to averaging processing with the average means (column 10, lines 29-31 and column 7, lines 50-52), and the second image is obtained by subjecting the image to processing different from the averaging processing (generate CT value of pixels in the differential image) (column 10, line 29).

Regarding claim 33, please refer back to claim 1 for further teachings and explanations.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masumoto et al. U.S. Patent No. 7,046,833 as applied to claim 1 above, and further in view of Qian et al. U.S. Patent No. 6,195,450.

Regarding claim 4, as discussed in previous claims, Masumoto teaches an image processing apparatus wherein the average means includes determination means for determining the weighting factor (vectors determination) on the basis of the decided result (column 6, lines 20-43). Masumoto does not explicitly teach a multiplication means for multiplying values of the first pixel and the second pixel by the weighting factor. Qian further teaches an image processing wherein comprises a multiplication means for multiplying values of the first pixel and

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the second pixel by the weighting factor (column 12, lines 18-22). Modifying Masumoto's method of image processing according to Qian would be able to scale pixels with a factor so that pixels corresponding to relative small values can have similar values to pixels' large values for further analysis (column 3, lines 24-30). This would improve processing and therefore, it would have been obvious to one of the ordinary skill in the art to modify Masumoto according to Qian.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masumoto et al. U.S. Patent No. 7,046,833 as applied to claim 1 above, and further in view of Chaddha U.S. Patent No. 6,360,019.

Regarding claim 9, Masumoto teaches the decision means decides the similarity between the first pixel and the second pixel in single image obtained by photographing with an image equipment (as explained in previous claims). Masumoto does not explicitly teach the decision means wherein decides the similarity between the first pixel and the second pixel by using a result of a comparison which is made between a vector value constructed by arraying scalar values of the first pixel in a single image obtained by photographing a subject with an imaging equipment, and a vector value constructed by arraying scalar values of the second pixel. Chaddha teaches an image processing (abstract) that takes input images/process image (column 5, lines 54-59) wherein teaches a decision means to decides the similarity (matching and classifying pixels) (column 9, lines 1-40) between the first pixel (left pixel) (column 9, lines 1-40) and the second pixel (right pixel) (column 9, lines 1-40) by using a result of a comparison which is made between a vector value (column 9, lines 14-18) constructed by arraying scalar values (column 11, lines 19-24) of the first pixel in a single image obtained by photographing a



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subject with an imaging equipment, and a vector value constructed by arraying scalar values of the second pixel (column 11, lines 19-24 and column 12, lines 45-54). Modifying Masumoto's method of processing image according to Chaddha would be able to utilize vector and scalar values in deciding similarity of pixels. This would improve processing because it would create a codebook so that the matching and comparing pixels can be pre-computed and can be easily mapped (column 4, lines 28-55) and therefore, it would have been obvious to one of the ordinary skill in the art to modify Masumoto according to Chaddha.

***Allowable Subject Matter***

11. Claims 14 and 34 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, set forth in this Office action.

***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Contact Information***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Q. Le whose telephone number is 571-272-7424. The examiner can normally be reached on 8:30 A.M - 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Brian Le  
July 5, 2007